

# Algebra 1—An Open Course

Developed by: Monterey Institute for Technology and Education, with generous funding from The William and Flora Hewlett Foundation



**Project Goal:** To offer a multi-modal approach to Algebra I that incorporates cutting edge online learning methods and technologies and is delivered to the world as an Open Educational Resource.

## Curricular Sequence

Offering a **scope and sequence** of a two-semester Algebra 1 course that is traditionally a student's **first exposure to Algebra in middle or high school**, this course is correlated to national common core standards and to standards across the 50 states.

## Learner Centered Experience

This project is designed to deliver an **adaptable, learner-centered experience**, informed by historic and current learning theory, research in mathematics education, and recent findings in learning, technology, and media. The design process is informed by a rigorous study of current and proposed curriculum standards and products, including textbooks, software, web applications and tools. The design concepts were further refined by an advisory panel of math experts, educational membership organizations, practitioners, and a series of focus groups around the country with administrators, instructors, and students.

## "Portfolio of Learning"

The learning experience integrates a **broad range of approaches designed to open the door to mathematics concepts, procedures, mathematical reasoning and critical thinking** for teachers and learners. The learning object architecture allows institutions and instructors to adapt the content to different programs and learners' needs.

## Media-Rich and Diverse

Learning objects include dynamic **audio and video presentations, active and collaborative learning activities, problem sets, self-tests, and formative and summative assessment**. Students work through activities in a sequence that leverages their own successful learning strategies while building 21st century skills. Components include:

**Warm-ups:** a series of problems to assess prior knowledge and recommend review.

**Presentations:** a rich-media presentation of the topic concept with illustrated examples.

**Worked Examples:** narrated step-by-step presentations of a problem solved.

**Practice Problems:** symbolic and word, designed in adaptive sets, offer students immediate feedback.

**Text:** an integrated textbook provides comprehensive coverage of topics with additional explanations, manipulatives and examples. .

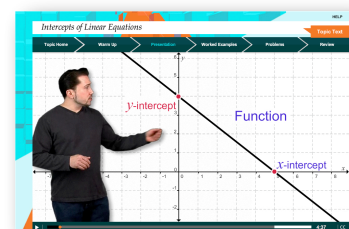
**Review:** self-test understanding prior to moving to the next topic.

**Projects:** collaborative assignment in the project-based learning tradition to solve real-world problems.

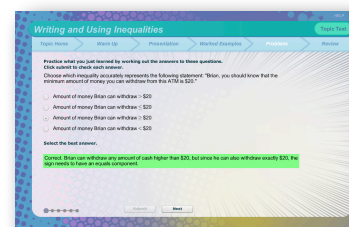
**Tutoring Simulation:** offers students directed guidance in problem solving.

**Puzzles:** give learners a chance to practice what they have learned in a fun, no-fault environment.

**Assessment:** formative and summative assessment designed to guide a learner's progress.



Tiles per side (n)	Total Tiles to Outline Pool
3	8
4	12
5	16
6	20
7	24
8	28



NROC is a project of the non-profit Monterey Institute for Technology and Education. These open educational resources made possible with support from The William and Flora Hewlett Foundation, The Bill and Melinda Gates Foundation and sustaining members of the NROC Network.

To register for regular updates or provide feedback on this project, visit us at:  
**NROCmath.org**